UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00871

August 14, 2003

Ms. Megan Callahan Grant
NOAA Restoration Center - Oregon Field Office
525 NE Oregon St., Suite 200
Portland, Oregon 97232

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of the Mt. Scott Creek Culvert Removal Project, Mt. Scott Creek Watershed, Clackamas County, Oregon

Dear Ms. Callahan Grant:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries), on the effects of the proposed Mt. Scott Creek Culvert Removal Project, Mt. Scott Creek Watershed, Clackamas County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Lower Columbia River steelhead (*Oncorhynchus mykiss*), and Lower Columbia River chinook salmon (*O. tshawytscha*). As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This document also serves as consultation on essential fish habitat (EFH) for chinook and coho salmon pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600. After review of the EFH information included with the BA, NOAA Fisheries has determined the proposed action may adversely effect EFH for chinook and coho salmon.

If you have any questions regarding this consultation, please contact Ben Meyer of my staff in the Oregon Habitat Branch.

Sincerely,

for D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Mt. Scott Creek Culvert Removal Project,
Mt. Scott Creek Watershed, Clackamas County, Oregon

Agency:	NOAA Fisheries (Restoration Center)
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	August 14, 2003
Issued by:	for D. Robert Lohn Regional Administrator
Refer to:	**2003/00871**

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1. INTRODUCTION

1.1 Background

On July 14, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a request, and biological assessment (BA), from the NOAA Restoration Center (RC) for Endangered Species Act (ESA) section 7 formal consultation and Magnuson-Stevens Fishery Conservation and Management Act (MSA) essential fish habitat (EFH) consultation for the Mt. Scott Creek Culvert Removal Project, in the Mt. Scott Creek watershed, Clackamas County, Oregon. The Federal nexus for this project is funding it is receiving through the RC's Community-based Restoration Program. The project will be completed by the Oregon Department of Fish and Wildlife (ODFW).

In the July 14, 2003, letter and BA, the RC determined that the following listed evolutionarily significant units (ESUs) of Columbia basin salmonids may occur within the project area: Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*), and LCR chinook salmon (*O. tshawytscha*). Subsequently, the RC determined that the proposed action is "likely to adversely affect" (LAA) LCR steelhead and LCR chinook salmon. LCR steelhead were listed as threatened on March 19, 1998 (63 FR 13347), and LCR chinook salmon were listed as threatened on March 24, 1999 (64 FR 14308). The RC determined that the proposed action may adversely effect EFH for chinook or coho salmon.

The objective of this consultation is to determine whether the proposed action is likely to jeopardize the continued existence of the two listed ESUs of Columbia basin salmonids described above. This document is based on the information presented in the BA, additional information and project designs, and discussions with RC and ODFW staff.

1.2 Proposed Action

The proposed project involves replacing three undersized culverts (one 60-inch by 14-foot long corrugated metal pipe (CMP), one 64-inch by14-foot long CMP, one 72-inch by 46-inch by 16-foot long CMP arch, and one 20-inch overflow pipe) with a full span, pre-cast concrete bridge that will provide unrestricted fish passage at all migratory flows. The purpose of this project is to improve passage for anadromous fish along Mt. Scott Creek. Construction is expected to take five days to complete. The action area is the stream channel, which includes the water and land, including submerged land, from roughly 30 feet upstream of the existing crossing to approximately 300 feet downstream of the crossing. This includes the area downstream of the construction area that could be affected by appreciable turbidity that could result from the proposed project.

The proposed construction sequence will be as follows. Construction materials will be delivered and the stream diversion set up on day one. The stream diversion will be a 12-inch plastic pipe that will accommodate a constant bypass of summer flows in the creek. The bypass will start 20 feet above the construction area and outlet back into the stream channel 20 feet below the

existing culverts. The bypass pipe will be routed through one of the western most culverts while the other culverts are removed and the eastern bridge abutment is prepared on day one. After completion of the eastern bridge abutment, the bypass pipe will be re-set to remove the final culvert and install the western bridge abutment on day two. The bridge will be 15 feet wide and the deck will be 5 feet over the stream surface. The newly installed bridge abutments will be protected by placing rip-rap along the abutment toe and clean 3-inch minus gravel will be placed in the channel to simulate a natural a natural stream bed on day two. The upper portion of the bridge abutments and the bridge deck will be placed on day three. Day four will consist of the installation of bridge hardware and grout between planks. The driveway will be paved on day five. Seeding and replanting of any exposed bank soils will be completed as soon as feasible following construction.

The work will be completed during the preferred in-water work window from July 1 to September 30. Monitoring of success will include pre-project monitoring of baseline habitat information collected in the month before the start of construction, implementation monitoring conducted during construction to ensure project is implemented according to design, and post-project monitoring during fall spawning survey, high water inspection, and habitat information collected two and six years later.

1.2.1 Staging and Construction Access

The proposed action includes the staging of construction equipment and materials using the driveway, gravel pad and basketball court of the house on the west side of the project area. This driveway is about 100 feet from the stream.

All construction equipment will be fully inspected for leaks and possible sources of oil, gas, or other chemical contamination. Equipment found to be leaking or at possible risk of contamination will be prevented from working until completely repaired. The contractor is required to have an oil/fuel spill kit with absorbent booms available at all times. A straw bale check dam with absorbent boom will be installed directly below the project site to prevent any possible downstream contamination.

1.2.2 In-water Work Area Isolation

The proposed action includes isolation and dewatering of the work area to perform the culvert removal in the dry, to minimize potential take of fish and potential effects to fish habitat. The constant bypass system that will carry all stream flow through the project site will reduce the potential for turbid water to enter the stream. An additional 2-inch pump will be on hand to remove any water that seeps through gravel and enters the project reach pumping by it to an upland site where it will be infiltrated before allowed to flow back into the system. The bypass system will remain in place until all instream work is complete.

Although listed fish are not expected to be present at the time of construction, precautions will be taken to isolate the project and ensure that no fish are left in the area. Before installing the

stream bypass, small mesh seines will be placed above and below the project site to prevent fish from entering from above or below. Any fish in the area will be removed by seining the culvert outlet pool and any other pooled water before any instream work. After seining, an authorized ODFW employee will use an electro-fisher to remove any remaining fish from the project area. Any fish captured will be released immediately into nearby free flowing water.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

Mt. Scott Creek serves as a migration, spawning and rearing area for all listed species under consideration in this Opinion. Essential features of the area for the species are: (1) Substrate; (2) water quality; (3) water quantity; (4) water temperature; (5) water velocity; (6) cover/shelter; (7) food (juvenile only); (8) riparian vegetation; (9) space; and (10) safe passage conditions. The proposed action may affect the essential habitat features of water quality and riparian vegetation. References for further background on listing status, biological information and critical habitat elements can be found in Table 1.

Table 1: References for Additional Background on Listing Status and Biological Information for the Listed Species Addressed in this Opinion.

Species	Listing Status	Protective Regulations	Biological Information, Historical Population Trends
Lower Columbia River steelhead	March 19, 1998; 63 FR 13347, Threatened	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Lower Columbia River chinook salmon	March 24, 1999; 64 FR 14308, Threatened	July 10, 2000; 65 FR 42422	Myers *et al.*1998; Healey 1991

2.1.2 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements and current status of the listed species, and evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to:

(1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action. For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

2.1.3 Biological Requirements

The first step in the method NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the biological requirements of the species most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species by taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list LCR steelhead and LCR chinook salmon for ESA protection and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for LCR steelhead and LCR chinook salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are habitat characteristics that function to support successful spawning, rearing and migration. These involve adequate fish passage, water quality, water quantity, substrate, shade and cover. Because the current status of the LCR steelhead and LCR chinook salmon, based upon their risk of extinction, has not significantly improved since the species were listed, adverse impacts to these biological requirements have the potential to be significant.

2.1.4 Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. For the purposes of this project, the action area is the stream channel, which includes the water and land, including submerged land, from roughly 30 feet upstream of the existing crossing to approximately 300 feet downstream of the crossing.

The project is on Mt. Scott Creek. Mt. Scott Creek originates in springs northeast of Happy Valley, flows southwesterly through Happy Valley, then turns west and flows between Mt. Scott and Mt. Talbert. Several minor tributaries enter the creek in its upper reaches. Mt. Scott Creek flows through North Clackamas Central Park and joins Kellogg Creek 3.2 kilometers (km) or 2.0 miles (mi) above its confluence with the Willamette River.

Mt. Scott Creek is a third-order stream which originates in the eastern edge of the Lower Willamette valley in an area known as the Boring Lava Domes. Mt. Scott and Mt. Talbert are prominent features of this geologic formation (Vigil-Agrimis and Ellis Ecological Associates 2000). The watershed drains 9.26 square miles of hilly terrain in the east and valley lowlands to the west. The upper half of the basin drains about 1,000 acres which consists of a combination of private land and suburban greenspace, with some agricultural land. The lower half of the watershed is residential and heavy industrial, with some urban greenspace primarily near stream corridors. Land ownership in the project area is mostly private.

Mt. Scott Creek at Interstate 205 (I-205) is a medium small stream, with a moderate gradient, a small flood plain, within a well defined inner gorge. The riparian area is intermixed, forested and open grass lands. Current land use is primarily residential and commercial/industrial. Historic use included agriculture and forestry. General stream habitat includes various pools and glides, but is not very complex nor does it include large woody debris or instream structure. The stream channel is moderately constrained and contains potential spawning gravels. Fine sediments occur within the gravels, and stream bank erosion and down-cutting is evident within adjacent tributaries. The reach of Mt. Scott Creek within the action area is considered the best stream habitat within Mt. Scott Creek for spawning and rearing (ODFW 1998).

Several culverts on Kellogg and Mt. Scott Creeks may be marginally passable to fish or passable only at certain flows (ODFW 1999). In addition to the culverts, small dams and weirs, screened and unscreened pumps, and diversions are present throughout Kellogg and Mt. Scott Creeks. Mt. Scott Creek at I-205 was recently retrofitted with baffles to reduce flow velocities and create resting pools for migrating fish. A non-functional fish ladder on Mt. Scott Creek at Sunnyside Road has been replaced by a bridge.

The baseline conditions for Mt. Scott Creek within the action area have been adversely affected by the surrounding urban development. Development has directly encroached on the riparian area along Mt. Scott Creek. This has affected water quality, water quantity, temperature, stream bank stability, and input of organic/woody debris. Development within the watershed has reduced permeable surfaces and wetlands resulting in increased peak flows from storm water runoff and sediment and pollutants. Potential for restoration includes moderation of flows, reduction of fine sediment input, re-establishment of riparian habitat, reconnecting the riparian corridor, re-establishment of instream structure, and improving fish passage.

NOAA Fisheries remains concerned over the low abundance and declining population of LCR steelhead. Mt. Scott Creek has low numbers of steelhead in part due to access barriers and habitat degradation. Of the many native steelhead stocks identified within the ESU, the majority of them are considered depressed. Habitat degradation has contributed to the decline. Urbanization in the Portland and Vancouver area is of particular concern. Urbanization has been associated with general habitat degradation and changes of natural physical processes. Population trends are generally downward.

Although ODFW surveys in 2002 and 2003 recently found no anadromous fish in Mt. Scott or Kellogg Creeks, small numbers of anadromous fish have been documented in Mt. Scott Creek upstream of I-205, including one coho salmon, within the last ten years. Considering recent improvements to fish passage in the area, increased anadromous fish use of the stream is likely in the near future.

2.1.5 Analysis of Effects

2.1.5.1 Effects of Proposed Action

In step 3 of the jeopardy analysis, NOAA Fisheries evaluates the effects of the proposed action on listed fish and their habitat.

NOAA Fisheries believes that the replacement of the culverts with the bridge will result in an overall improvement in fish passage for anadromous fish in Mt. Scott Creek. However, activities associated with construction of the project may result in short-term impacts. These impacts are identified and outlined below.

Since the proposed culvert removal is to be performed "in the dry", only a temporary increase in turbidity would be expected to occur when the stream is re-watered following construction. Therefore, some increase in turbidity is expected in the action area along Mt. Scott Creek. Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, except when the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid, or elevated total suspended solids, waters experience a reduction in predation from piscivorus fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade-off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and magnitude of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids appear to be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjorn and Reiser 1991). However, research indicates that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991). While there may be a short-term increase in turbidity as a

result of the construction, implementation of sediment control measures described in section 1.2 above are expected to minimize transport of sediment downstream in Mt. Scott Creek and minimize the area of potential increased turbidity.

Some disturbance to the banks of the stream may occur during construction. All exposed soils will be seeded and replanted with native vegetation as soon as feasible following construction. As the newly planted riparian vegetation matures over time, it will contribute to the improvement of habitat functions including microclimate, erosion control and shelter for salmonids.

As a result of the proposed action, direct handling of listed salmonids during fish salvage and removal may be necessary. Direct and delayed mortality of LCR steelhead and LCR chinook salmon juveniles from capture and relocation stress could occur during fish salvage and removal. Fish handling can increase plasma levels of cortisol and glucose in fish (Hemre and Krogdahl 1996, Frisch and Anderson 2000). Further, when poorly done, electrofishing can injure of kill juvenile or adult steelhead. Physical injuries from electrofishing include internal hemorrhaging, spinal misalignment, or fractured vertebrae.

To reduce the likelihood of exposing fish to construction activities, the project includes a series of techniques to isolate fish from the worksite. These include restrictions in timing of in-water construction, physically blocking the work area with small mesh seines to exclude fish, and capturing and moving any remaining fish. To reduce or avoid the possibility of harm from electrofishing, an authorized ODFW employee will use and electro-fisher to remove any remaining fish from the project area, adhering to NOAA Fisheries electrofishing guidelines (NMFS 2000). These techniques are intended to reduce the number of fish that will experience construction effects. NOAA Fisheries expects few salmonids to be in the area during construction and therefore expects handling of fish to be minimal.

2.1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." This is step 4 in NOAA Fisheries' analysis process. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater impacts to listed species than presently occurs. However, development of structures and vegetation clearing along the streams is likely to continue. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years**.**

2.1.6 Conclusion

After reviewing the best available scientific and commercial information available regarding the current status of the LCR steelhead or LCR chinook salmon considered in this consultation, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NOAA Fisheries' opinion that the action, as proposed, is not likely to jeopardize the continued existence of these species.

Our conclusion is based on the following considerations: (1) Removal of the culverts and construction of the bridge will be completed between July 1 and September 30, which is the preferred in-water work window for Mt. Scott Creek; (2) sediment control measures are expected to minimize sediment transport and thus minimize turbidity increases in the action area; (3) any turbidity increases which do occur are expected to be of short duration; (4) long-term, beneficial effects will result from the proposed culvert removal; and (5) the proposed action is not likely to impair properly functioning habitat, or retard the long-term progress of impaired habitat toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.1.7 Reinitiation of Consultation

As required by 50 CFR 402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that although the effects of the proposed action on listed ESUs in the area can be minimized or even avoided by timing of construction activities, some incidental take of these listed fish is reasonably certain to occur, as a result of detrimental effects from increased turbidity in the action area on Mt. Scott Creek, fish handling and electro-fishing, and limited riparian habitat disturbance.

Take is likely to be in the form of "harm" (habitat modification; see 50 CFR 222.102), which will occur during construction, and in the form of injury or mortality from the activities used to move fish during worksite isolation. Because fish presence over time in any given locale is highly variable, for habitat-affecting activities, NOAA Fisheries cannot estimate a specific amount of incidental take of individual LCR steelhead and LCR chinook, despite the use of best scientific and commercial data available. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable". Based on the information provided by the NOAA Restoration Center and other available information, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the action covered by this Opinion. The extent of the take is limited to the action area.

Injury or mortality from worksite isolation techniques, however, can be estimated in terms of numbers of fish affected. For take from electrofishing techniques, the extent of lethal take anticipated is one fish (NMFS 2002a, 2002b). An estimate of the number of listed fish expected to be encountered during worksite isolation was obtained using the results of similar fish removal activities in the Lower Walla Walla River subbasin (Dry Creek and the Walla Walla River) in August 2002 (NMFS 2002a, 2002b). The take estimate for this proposed project reflects the smaller stream and lower populations estimates on Mt. Scott Creek.

Table 2. Estimate of Nonlethal and Lethal Take Associated with Proposed Project Requiring Isolation of an In-water Work Area and Electrofishing to Collect and Remove Fish.

Species	Life Stage	Estimated Total Catch	Nonlethal Take of ESA Listed Fish	Lethal Take of ESA Listed Fish
LCR steelhead	juvenile	10	8	1
LCR chinook	juvenile	10	8	1

Because of the timing of the in-water work period, capture and release of adult fish is not expected to occur as part of the proposed isolation of in-water work areas. Thus, NOAA Fisheries does not anticipate that any adult fish will be taken. Should any of the above described limits be exceeded, construction must stop and the action agency must reinitiate consultation.

2.2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion. The NOAA Restoration Center and ODFW shall include, as part of the section 10 River and Harbors Act permit, measures that will:

1. Minimize the likelihood of incidental take from construction, culvert removal, and bridge construction activities by applying permit conditions to avoid or minimize disturbance to riparian and aquatic systems.

2. Minimize the likelihood of incidental take by ensuring the success of revegetation.

3. Minimize the likelihood of incidental take from in-water work activities by ensuring that in-water work activities (culvert removal) are isolated from flowing water, and

4. Minimize the likelihood of incidental take by completing a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.2.3 Terms and Conditions

To comply with ESA section 7 and to be exempt from the prohibitions of section 9, the NOAA Restoration Center must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (construction, culvert removal, and bridge construction activities), the NOAA Restoration Center shall ensure that:

   a. Project design. The project will be reviewed to ensure that impacts to natural resources have been avoided, minimized and mitigated, and that the following overall project design conditions are met.
      i. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
      ii. In-water work. All work which could potentially contribute sediment or toxicants to listed fish-bearing systems, will be completed between July 1 and September 30.
      iii. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved in writing by biologists from NOAA Fisheries.
      iv. Pollution and erosion control plan. A pollution and erosion control plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
         (1) Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
         (2) Methods that will be used to confine, remove, and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
         (3) A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
         (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
   b. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished.
      i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
      ii. The following erosion control materials are onsite.
         (1) A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile

straw or hay bales will be used when available to prevent introduction of weeds.

(2) An oil-absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.

iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

c. Heavy Equipment. Heavy equipment use will be restricted as follows.

i. When heavy equipment is required, the applicant will use equipment having the least impact (*e.g.*, minimally-sized, rubber-tired).

ii. Heavy equipment will be fueled, maintained and stored as follows.

(1) Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 100 feet horizontal distance from any stream.

(2) All vehicles operated within 100 feet of any stream or waterbody will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

(3) When not in use, vehicles will be stored in the vehicle staging area.

d. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:

i. Material removed during excavation will only be placed in locations where it cannot enter streams or other waterbodies.

ii. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[1] mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure. Non-native sterile seed mix may be used the first year for temporary erosion control.

(2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate nor permanent stabilization.

iii. All erosion control devices will be inspected during construction to ensure that they are working adequately.

(1) Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.

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[1] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

(2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.

(3) Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.

iv. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.

v. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches. Catch basins will be maintained so that no more than 6 inches of sediment depth accumulates within traps or sumps.

vi. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other waterbody. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the amount of sediment entering aquatic systems.

2. To implement reasonable and prudent measure #2 (ensuring the success of revegetation), the NOAA Restoration Center shall ensure that revegetation at the project sites is completed in the following manner:

a. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation.

b. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

c. Plantings will be arranged randomly within the revegetation area.

i. If revegetation success has not been achieved after three years, the applicant will submit an alternative plan to the NOAA Restoration Center. The alternative plan will address temporal loss of function.

ii. Plant establishment monitoring will continue and plans will be submitted by the applicant to the NOAA Restoration Center until site restoration success has been achieved.

d. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action, unless approved in advance by a NOAA Fisheries biologist. Mechanical removal of undesired vegetation and root nodes is permitted.

e. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

3. To implement reasonable and prudent measure #3 (in-water work area activities), the NOAA Restoration Center shall ensure that the in-water work activities (culvert removal) are isolated from flowing water.

   a. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:
      i. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.
      ii. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
      iii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.
      iv. Seined fish must be released as near as possible to capture sites, where water quality is adequate and predation of recovering fish will be avoided or minimized.
      v. The RC shall ensure that the transfer of any ESA-listed fish to third parties other than NOAA Fisheries personnel receives prior approval from NOAA Fisheries.
      vi. The RC shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained before project seining activity.
      vii. The RC must allow NOAA Fisheries or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the seining records and facilities.
      viii. A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fishery biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.

b. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as described in NOAA Fisheries' electrofishing guidelines.[2]

4. To implement reasonable and prudent measure #4 (monitoring and reporting), the NOAA Restoration Center shall ensure that:

a. Monitoring. Within 30 days of completing the project, the NOAA Restoration Center will submit a monitoring report to NOAA Fisheries describing the RC's success meeting these terms and conditions. This report will consist of the following information.

i. Project identification.

(1) Project name.

(2) Starting and ending dates of work completed for this project.

(3) Name and address of the construction supervisor.

ii. Photographic documentation of environmental conditions at the project site before, during and after project completion.

(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

iii. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

c. Monitoring reports will be submitted to:

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[2] NMFS (National Marine Fisheries Service), *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

NOAA Fisheries
Oregon Habitat Branch
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3. MAGNUSON-STEVENS ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to

encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border.

Detailed descriptions and identifications of EFH for the groundfish species are found in the Final Environmental Assessment/Regulatory Impact Review for Amendment 11 to *The Pacific Coast Groundfish Management Plan* (PFMC 1998a) and NOAA Fisheries' *Essential Fish Habitat for West Coast Groundfish Appendix* (Casillas *et al.* 1998). Detailed descriptions and identifications of EFH for the coastal pelagic species are found in Amendment 8 to the *Coastal Pelagic Species Fishery Management Plan* (PFMC 1998b). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Action

The proposed action is detailed above in section 1.2. This area has been designated as EFH for various life stages of chinook and coho salmon.

3.4 Effects of Proposed Action

As described in detail in section 1.5, the proposed activities may result in detrimental short-term adverse effects to water quality in the project area. Removal of several culverts could result in a temporary increase in turbidity.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for Pacific salmon species.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the NOAA Restoration Center and all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.3 and 2.2.4, respectively, are applicable to EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.7 Statutory Conservation Requirement

Please note that the MSA (section 305(b)) and 50 CFR 600.920(j) require the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.8 Supplemental Consultation

The NOAA Restoration Center must reinitiate EFH consultation with NOAA Fisheries if the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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